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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/039,574	01/02/2002	Kellar Autumn	14134-002001	1771

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EXAMINER

AFTERGUT, JEFF H

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 04/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/039,574

Applicant(s)

AUTUMN, KELLAR

Examiner

Jeff H. Aftergut

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12-28-04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 1-23, 30-35 and 41-50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-29 and 36-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 24-29 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Autumn et al (the article from Nature entitled "Adhesive force of a single gecko foot-hair") or Liang et al (the article from Solid State Sensor and Actuator Workshop from June 4-8, 2000 entitled "Adhesive Force Measurements on Single Gecko Setae").

The article in Nature magazine suggested that at pages 681 to 683 that it was known at the time the invention was made to attach a single seta to a micro-electromechanical system cantilever capable of measuring force during attachment parallel and perpendicular to surfaces, see Figure 1 (e). the applicant is referred to Figure 3 for the placement of the seta onto the surface in the manner claimed wherein the seta is applied to a surface with a force perpendicular to said surface so as to preload an adhesive force of the seta. The flexible beam is oriented such that the seta is parallel to the surface and the flexible beam is pulled to reorient the seta with a force parallel to the surface. With regard to claim 25, the reference suggested that the adhesive force is greater than the cumulative force of the applying and pulling steps as identified by the reference. Regarding claims 26-28, the reference expressly stated that the adhesive force was created by exerting a force to produce a detachment angle between the seta and the surface wherein the angle was approximately 30 degrees.

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Regarding claim 29, the flexible beam produced a preload force while maintaining the seta substantially parallel to the surface to which the seta is attached.

In a like manner, applicant is referred to the article by Liang et al wherein the reference expressly suggested that a dual action cantilever would have had a seta attached thereto and manipulated in the fashion claimed in order to measure the forces associated with the attachment of the seta to the surface in the manner claimed.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Autumn et al (the article from Nature entitled "Adhesive force of a single gecko foot-hair") or Liang et al (the article from Solid State Sensor and Actuator Workshop from June 4-8, 2000 entitled "Adhesive Force Measurements on Single Gecko Setae").

The references to Autumn et al and Liang are discussed at length above in paragraph 2 and applicant is referred to the same for a complete discussion of the references. Each of the references suggested that a single "protrusion" would have been attached to a flexible beam in the formation of the adhesive force for the purpose of measuring the associated force of the single seta against the wall or substrate. The applicant is advised that a gecko when attaching to a wall had thousands of the identified seta attaching to the wall at a single time. To apply plural seta to the surface

of the cantilever beam (the flexible beam) in the references to either one of Liang et al or Autumn et al would have been obvious to one of ordinary skill in the art at the time the invention was made as such would have provided one with an enhanced adhesive attachment force for attachment of the beam to the substrate.

Note that it would have been additionally within the purview of the ordinary artisan to utilize the assembly to attach to flat and shaft substrates as such would have been understood to have the desired temporary attachment of the components thereto. Note that a gecko attaches to both planar and shaft like components with the seta naturally provided therein.

Election/Restrictions

5. Applicant's election of Group V, claims 24-29 and 36-40 in the reply filed on 12-28-04 (as well as the telephone conference dated 3-30-05) is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

It should be noted that newly presented claims 37-40 have been included in the elected invention claims and that claims 41-50 related to the non-elected article of manufacture claims and that the "seta" of the previously presented claims included both artificial and naturally occurring "seta".

6. Claims 1-23, 27-35, and 41-50 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no

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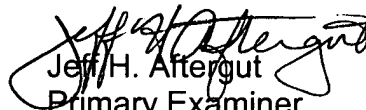
allowable generic or linking claim. Election was made **without** traverse in the reply filed on 12-28-04.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff H. Aftergut whose telephone number is 571-272-1212. The examiner can normally be reached on Monday-Friday 7:15-345 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on 571-272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jeff H. Aftergut
Primary Examiner
Art Unit 1733

JHA
March 16, 2005